

receives simple switch input signals from cassette controls **125a** through **125d**, or at least some of them, which indicate that the AV cassette is properly positioned in the base unit and that the PLAY button has been depressed so that the capstan and read heads appropriately engage the cassette tape. Either upon such engagement, or alternatively, upon pressing any of the controls **125a** through **125d**, the controller **180** would typically start the tape drive motor **200** and connect one of the three audio outputs from the tape read heads through one of the channel switches and the output amplifier **205** to the speaker **140** to provide an introduction to the audio visual program to be presented. Alternatively, three different introductions could be used with controls **125a** through **125d** determining which of the three is output to the speaker **140**. After the introduction, as determined by the controller **180** sensing appropriate commands on the control channel of the audio cassette tape, the scroll drive motor **210** would be turned on to advance the scroll one scene, to be turned off when the scroll sensor **164** senses the scroll arriving at the desired stopping point. During this time, the tape drive motor **200** may be continued to provide a continuous output during the scroll advancing, perhaps after the scroll stops presenting a question to the child with respect to something in the scene being viewed. In the exemplary embodiment, the cassette tape would then stop, awaiting the child's response through the controls **125a-125d**. For instance, the question may be, "How many birds do you see in the picture?", with the number "1" showing on the scroll in front of control **125a**, number "2" showing on the scroll in front of control **125b**, etc. If the child pushes the button associated with the right answer, the controller **180** would turn on the scroll drive motor and the tape drive motor **200**, and select the appropriate setting of the channel switches to select the channel introducing the next scene. If the child pushes a control button associated with the wrong answer, the tape drive motor **200** and scroll drive motor **210** may again both be turned on, though the channel switches set to select a different audio channel which indicates what the correct answer was, and why, and also introduces the next scene, perhaps in a somewhat more abbreviated manner than if the correct answer was given.

Alternatively, if the tape drive has a reversing capability with the capstan still engaged, the selection of the wrong answer might elicit a fast rewind and the playing of one of the other channels through the speakers explaining why the answer was wrong and inviting another attempt. Even without such a reversing capability, which would be difficult to implement inexpensively, it is possible to still give the child one or more further attempts before going on. By way of example, if the right answer is given, the tape might be turned on to play a song or tell some short supplemental story before or after advancing the scroll. Such an additional story line, a song or whatever, would provide enough time to explain on the other channels why a particular wrong answer selected was incorrect and to elicit another try by the child one or more times. (Audio tape stopping points may be keyed not only to commands in the control channel, but can be dependent also on the answer the child gave.) Thus, the same objective is achieved, simply by appropriate programming of material on the audio tape without the complexity of audio tape drive reversal capabilities.

It can be seen from the foregoing that the toy is interactive with the child, encouraging, even requiring interaction which maintains the child's attention and which can have an educational value. Obviously the type of interaction called for can be made highly dependent upon the programming material on the audio cassette associated with the AV cas-

sette. By way of example, each scene on the scroll might have multiple characters, with the child choosing a character in each scene to hear a story line segment, description, etc. associated with that character. Alternatively, the child might be told that a particular song is to be sung by the character and asked to choose (through controls **125**) the character the child would like to have lead the song. The variations achievable are essentially endless, with only a few examples having been given herein.

The ability of the scroll sensor to sense not only each appropriate scroll stopping point, but the scene identification also, allows the micro-controller to compare the scroll position with the command information being read from the respective channel of the audio tape so that the micro-controller can assure that the scroll and the tape are always in step with each other. In a simpler embodiment, the scroll sensor might only sense each scroll stopping position by way of a very crude mechanical or optical sensor, or for that matter, even a manually controlled scroll advance switch might be used. In such a system, the controller shown in FIG. **8** could be replaced with simple hardwired circuitry so that between each scene the tape channel corresponding to the respective control **125** pushed by the child is played back. Finally, as an intermediate embodiment, the control channel on the tape and the scroll sensor are both used to coordinate the operation of the scroll and tape, but without the ability to sense lack of synchronism between the two, as might occur because of the partial rewinding of the AV cassette resulting in the scroll stopping at a position different from the corresponding story line segment that the audio cassette stopped at during the rewind.

Thus, it may be seen that the present invention may be realized in various embodiments ranging from relatively simple embodiments to more complicating embodiments, assuring the desired synchronization of, and the desired child interaction with, the invention. While various embodiments have been disclosed and described in detail herein, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

What is claimed is:

1. An audio-visual cassette comprising:

a plurality of rollers including a first-roller and a second roller;

a picture scroll including a plurality of pictorial scenes, a first end of said picture scroll being coupled to said first roller and a second end of said picture scroll being coupled to said second roller;

an audio cassette tape including a magnetic tape having pre-recorded audio which is complementary with said plurality of pictorial scenes on said picture scroll, the magnetic tap being rotated during playback, around at least one as of rotation generally orthogonal to the plurality of rollers; and

a removable casing providing a unitary unit that includes (i) the audio cassette tape, (ii) the picture scroll, and (iii) the plurality of rollers, the casing including a transparent viewing window located on a front surface to allow a pictorial scene of the plurality of pictorial scenes to be visible.

2. The audio-visual cassette according to claim 1, wherein said audio cassette tape is permanently attached to a rear surface of the casing.

3. The audio-visual cassette according to claim 1 further including an idle roller operating in combination with said plurality of rollers.